

## **REMARKS**

Claims 1-18, 25-32, 39-48 are all the claims pending in the application. Claims 13-18 and 25-32 were withdrawn from consideration pursuant to a restriction requirement. This Amendment amends claims 1, 2, 3, 5, 8, 9, 11, 13, 14, 15, 17, 25, 26, 27, 31, and 32, adds claims 39-48, cancels claims 19-24 and 33-38, and addresses each point of rejection raised by the Examiner. Favorable reconsideration is respectfully requested.

Applicants thank the Examiner for initialing the Information Disclosure Statement dated June 28, 2004.

### **Editorial Changes**

The specification is amended to correct an obvious typographical error and to correct mistakes in the meaning of well known acronyms.

Various claims are amended to emphasize the role of the method in achieving described characteristics. For example, claim 3 is amended to emphasize the role of “controlling [the] doping level” in claim 2 on the doping profile recited in claim 3.

Applicants have rewritten withdrawn independent claims 13 and 25 to depend from claim 1. Accordingly, claim 1 is now generic. Reinstatement of the withdrawn claims is respectfully requested upon allowance of a generic claim.

### **Rejections - § 112**

Claims 2, 3, 8, and 9 are rejected under 35 U.S.C. § 112, second paragraph. As the step of forming the semiconductor layer has been amended to include doping, the rejection is believed to be fully addressed. In view of the amendments, reconsideration and withdrawal of the § 112 rejection are requested.

### **Rejections - § 102 and § 103**

Claims 1-5 and 7-11 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,335,547 to Yoshinaga *et al.* (“Yoshinaga”). Claims 6 and 12 are rejected as unpatentable over Yoshinaga.

Applicants have amended independent claim 1 to recite, among other things:

selecting a starting semiconductor substrate having a first defect density and a first doping level;

forming a semiconductor layer on said starting semiconductor substrate to have a second defect density that is equal to or less than the first defect density, the semiconductor layer being doped during formation to have a second doping level that is less than the first doping level at a first surface closest to the starting semiconductor substrate...

As explained in the specification, the high doping levels in conventional substrates result in increased optical loss when light is transmitted through the substrate. However, the relatively low defect densities in conventional substrates make them a convenient and economical starting point for device fabrication. By forming the semiconductor layer to have a lower doping level at the surface of the semiconductor layer opposite to the active components, optical losses in the semiconductor layer are reduced, while taking advantage of the relatively low defect densities afforded by starting with a conventional substrate.

Yoshinaga does not discuss the relative doping levels of the doped substrate 1 and the overlying layer 3 or 6. Moreover, Yoshinaga offers no motivation to use such relative doping levels, as Yoshinaga neither discloses nor recognizes the linkage between substrate doping levels and optical losses.

In view of the amendments, reconsideration and withdrawal of the § 102 and § 103 rejections are respectfully requested.

### **New Claims**

Applicants have added claims 39-48.

Claims 39-44 depend from elected claims. Consideration on the merits is requested.

Claims 45-48 depend from withdrawn claims and are designated as “Withdrawn--New”. With regard to the propriety of claims having the “Withdrawn--New” status identifier, please see the Official Gazette Notice dated 5 July 2005 entitled “Acceptance of Certain Non-Compliant Amendments Under 37 CFR 1.121(c).”

**Conclusion**

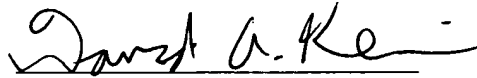
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited.

Applicants authorize the Commissioner to charge any fees determined to be due with the exception of the issue fee and to credit any overpayment to Deposit Account No. 11-0600.

The Examiner is invited to contact the undersigned at (202) 220-4209 to discuss any matter concerning this application.

Respectfully submitted,  
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